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University of California
College of Agriculture
Agricultural Experiment Station
Berkeley, California

SEASONAL LABOR NEEDS FOR CALIFORNIA CROFS

STANISLAUS COUNTY

Progress Report No. 50

by

R. L. Adams

Preliminary -- Subject to Correction

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Seasonal Labor Needs for California Crops

Stanislaus County

Scope of Presentation.--- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.
2. The data are confined solely to crops, livestock needs being ignored.
3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.
4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including teamsters, tractor drivers, irrigators, and shed packers of vegetables or fruits.
5. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.
6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Crops, Acreage, and Production.--- The basis used in calculating occasional or seasonal need for labor, in addition to that furnished by farm operators and regularly employed workers, appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements
Stanislaus County

Crop	Acreage*	Production
Field crops:		
Alfalfa	67,415†	322,199 tons†(average 4.8 tons per acre)
Beans	47,134†	424,200 cwt.
Cotton	730	452 bales✓
Flax	1,320	
Grain -- barley	70,254†	1,357,746 bushels†
oats	5,271	180,871 bushels
wheat	24,796	346,201 bushels
Grain hay	21,119†	35,943 tons†
Pasture ^Q -- Ladino clover	9,783	
Sudan grass	5,178	
native pasture	423,770	
Rice	3,904	
Silage -- corn	5,842	Average 7 tons per acre
Sorghums for grain	5,225†	140,385 bushels†

Table continued on next page.

Seasonal Labor Needs for California Crops

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 6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.
- Crops, Acreage, and Production.-- The basis used in calculating seasonal or occasional seasonal need for labor, in addition to that furnished by farm operators and regular employed workers, appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements
Stanislaus County

Crop	Acreage	Production
Field crops:		
Alfalfa	87,418†	332,199 tons (average 4.8 tons per acre)
Beans	47,134†	434,300 cwt.
Cotton	730	433 bales
Flax	1,380	
Grain -- barley	70,254†	1,367,795 bushels†
oats	5,271	180,371 bushels
wheat	24,750	340,301 bushels
Grain hay	21,112†	25,943 tons†
Pasture -- ladino clover	2,755	
Shade grass	5,175	
Native pasture	423,770	
Rice	3,604	
Silage -- corn	5,345	Average 7 tons per acre
Forage for grain	5,325†	140,355 bushels†

Table continued on next page.

Table 1 continued.

2.

Crop	Acreage*	Production
Sugar beets ¶	¶	
Vegetable crops:		
Carrots -- fall and winter	100**	27,500 crates
Lettuce -- fall	500**	Average 150 crates per acre
Melons -- cantaloupes	2,179	326,850 crates
honeydews, Persians, and casabas	3,598	35,980 tons ††
watermelons	1,351	Average 10 tons per acre
Onions -- intermediate crop	400**	60,000 sacks of 50 pounds each
Peas -- canning	1,977**	3,954 tons
spring	¶¶	Average 150 hampers per acre
fall	¶¶	Average 50 hampers per acre
Spinach	1,315**	7,890 tons
Sweet potatoes	2,324**	290,500 crates
Tomatoes -- canning	2,707**	10,828 tons
fall market ¶	100**	
Fruit and nut crops:		
Apples ¶		
Almonds	5,072	760 tons
Apricots	5,489	22,000 tons { 7,200 tons (fresh weight) canned 13,800 tons (fresh weight) dried 1,000 tons (fresh weight) shipped
Cherries ¶		450 tons { 300 tons barreled 150 tons shipped
Figs	1,061	{ 450 tons (fresh weight) shipped } 800 tons Kadota (fresh weight) } 500 tons dried (dry weight) } ∂∂
Grapes -- raisin	5,200	{ 2,500 tons table grapes shipped by rail ¶¶
table	1,921	{ 36,100 tons wine grapes shipped by rail ¶¶
wine	11,630	{ 14,000 tons raisins (fresh weight) natural 6,000 tons raisins (fresh weight) dehy- drated ¶¶
Olives ¶	227 ^a	{ 44,876 tons to wineries 92 tons canning) 28 tons not canning) 120 tons ^a
Peaches -- clingstone	6,549	60,000 tons (of which 15,000 tons fresh weight were dried) ¶¶
freestone	3,018	13,500 tons { 8,000 tons (fresh weight) dried ¶¶ 1,500 tons (fresh weight) shipped 4,000 tons (fresh weight) canned
Pears ¶		250 tons
Prunes ¶		1,800 tons (fresh weight)
Walnuts	3,484	{ 1,721,700 pounds merchantable ^b 352,637 pounds culls estimated ^b
Blackberries ¶		
Raspberries ¶		
Strawberries ¶	40**	

* Acreage data based on unpublished data compiled by California Agricultural Extension Service from material furnished by California Cooperative Crop Reporting Service, irrigation districts in the county, and other available sources. October 21, 1935.

Table continued on next page.

† Data from 1935 Census for crop year 1934.

‡ It is estimated that approximately 60 per cent of the total acreage was of the black-eye variety.

§ Data from California Cooperative Crop Reporting Service. Final California cotton report for the 1935 crop. Sacramento, May 26, 1936, 1p.

¶ Need for seasonal labor on these crops inconsequential and hence ignored.

|| About 150 acres of sugar beets were grown in 1936, and apparently the acreage will increase in the future.

** Data from Federal State Crop Reporting Service -- Sacramento. Acreage of specified commercial vegetable crops by counties. 1935.

†† Estimated to be 55 per cent honeydews
33 per cent Persians
12 per cent casabas

‡‡ No pea acreage reported for 1935, but a considerable acreage was grown in 1936.

§§ Due to lack of assembled data, fig production was estimated from various sources for use in this report.

¶¶ Figured at 13 tons per car.

||| Drying ratio: clingstone peaches - 7.5 to 1
freestone peaches - 6 to 1
raisins - 4 to 1

a Estimate by California Olive Association.

b Data from Walnut Control Board -- culls estimated to be 17 per cent of total crop -- state average.

Operations Requiring Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal labor for the various crops raised in Stanislaus County are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

† Data from 1935 Census for crop year 1934.

‡ It is estimated that approximately 80 per cent of the total acreage was of the black-eye variety.

§ Data from California Cooperative Crop Reporting Service, Final California Cotton Report for the 1935 crop. Sacramento, May 26, 1936, pp.

¶ Based for seasonal labor on those crops inconsequential and hence ignored.

‡ About 150 acres of sugar beets were grown in 1936, and apparently this acreage will increase in the future.

++ Data from Federal State Crop Reporting Service -- Sacramento. Acreage of specified commercial vegetable crops by counties, 1935.

† Estimated to be 55 per cent homegrown
33 per cent foreign
12 per cent Canadian

‡ No per acreage reported for 1935, but a considerable acreage was known in 1936.

§ Due to lack of assembled data, the production was estimated from various sources for use in this report.

¶ Figured at 18 tons per acre.

‡ Drying ratios: olivaceous peaches - 7.5 to 1
freestone peaches - 6 to 1
raisins - 4 to 1

§ Estimate by California Olive Association.

¶ Data from Walnut Control Board -- only estimated to be 15 per cent of total crop -- state average.

Operations Requiring Seasonal Labor and Time of Need -- For operations requiring the use of seasonal labor for the various crops raised in Stanislaus County are indicated in Table 1. This information does not include the number of men and women needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops
Stanislaus County

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Field crops:				
Alfalfa -- commercial hay production (on 5,000 acres -- 6 cuttings)	Mowing with tractor	April 15-30 -- one-half of acreage	100	20 acres
	Raking	May -- five-sixths of acreage		20 acres
	Shocking with rake -- 50 per cent of acreage	June -- five-sixths of acreage		30 acres
	Trimming -- 50 per cent of acreage	July -- five-sixths of acreage		
		August -- five-sixths of acreage		10 acres
		September -- five-sixths of acreage		
		October -- five-sixths of acreage		
		November 1-15 -- one-half of acreage		
	Baling -- 50 per cent by portable presses, 50 per cent by pickup presses	April -- 8 per cent of job	100	9 tons
		May -- 14 per cent of job		
		June -- 14 per cent of job		6 tons
		July -- 14 per cent of job		
		August -- 14 per cent of job		
		September -- 14 per cent of job		
		October -- 14 per cent of job		
		November -- 8 per cent of job		
Alfalfa -- dairy farms (62,415 acres -- 6 cuttings)	Mowing	April 15-30 -- one-half of acreage	50	8 acres
	Raking	May -- five-sixths of acreage		20 acres
	Shocking	June -- five-sixths of acreage		6.5 acres
		July -- five-sixths of acreage		
		August -- five-sixths of acreage		
		September -- five-sixths of acreage		
		October -- five-sixths of acreage		
		November 1-15 -- one-half of acreage		
	Hauling with wagons and stacking	April -- 8 per cent of job	66	
		May -- 14 per cent of job		
		June -- 14 per cent of job		
		July -- 14 per cent of job		
		August -- 14 per cent of job		4 tons
		September -- 14 per cent of job		
		October -- 14 per cent of job		
		November -- 8 per cent of job		
Beans	Hoeing -- usually twice	July -- all of acreage once	100	Total of
		August -- all of acreage once		3.5 man-hours per acre

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Beans (cont.)	Irrigating -- 4 times	April -- all of acreage once	80	4 acres (12-hour day)
		June 15-30 -- 75 per cent of acreage		
		July 1-31 -- all of acreage once, one-half of acreage twice		
	Piling -- 90 per cent of black-eye, 10 per cent of other varieties	August 1-10 -- 75 per cent of acreage	15	2 acres
		September 15-30 -- 25 per cent of job		
		October 1-31 -- 50 per cent of job		
	Threshing with stationary -- 90 per cent of black-eye, 10 per cent of other varieties	November 1-15 -- 25 per cent of job	75	35 cwt. (8-hour day)
		September 15-30 -- 20 per cent of job		
		October 1-31 -- 70 per cent of job		
	Threshing with pickup combine -- 10 per cent of black-eye, 90 per cent of other varieties	November 1-15 -- 10 per cent of job	50	6 acres
		September 15-30 -- 30 per cent of acreage		
		October 1-31 -- 60 per cent of acreage		
Cotton	Hauling to town -- 50 per cent of crop; other 50 per cent hauled by commercial truckers	November 1-15 -- 10 per cent of acreage	100	375 cwt.
		September 15-30 -- 30 per cent of acreage		
		October 1-31 -- 60 per cent of acreage		
	Chopping	May 1-31 -- 50 per cent of acreage	100	2.5 acres
		June 1-30 -- 50 per cent of acreage		
		October 1-31 -- 30 per cent of crop		
	Picking	November 1-30 -- 30 per cent of crop	100	300 pounds seed cotton
		December 1-31 -- 12 per cent of crop		
		January 1-31 -- 11 per cent of crop		
		February 1-28 -- 10 per cent of crop	100	200 pounds seed cotton
		March 1-15 -- 7 per cent of crop		

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Flax	Harvesting	June 15-30 -- 20 per cent of acreage July 1-31 -- 40 per cent of acreage August 1-31 -- 40 per cent of acreage	80	5 acres
Grain -- barley, oats, and wheat	Harvesting with combine	June 1-30 -- 60 per cent of acreage July 1-31 -- 40 per cent of acreage	80	8 acres
	Picking up and piling sacks	June 1-30 -- 60 per cent of acreage July 1-31 -- 40 per cent of acreage	100	500 sacks
	Watchmen	June July August		
	Grain hay	Mowing Raking Shocking Baling -- 50 per cent of crop "Swathing" with push header	May 1-31 -- all of acreage May 1-31 -- all of acreage May 1-31 -- all of acreage June -- 50 per cent of job July -- 50 per cent of job October 1-31 -- 60 per cent of acreage November 1-20 -- 40 per cent of acreage	8 acres 16 acres 20 acres 4 tons 15 acres
Rice	Threshing with pickup combine	October 1-31 -- 50 per cent of acreage November 1-30 -- 50 per cent of acreage	40	4 acres
Silage	Silo filling	September 1-30 -- 15 per cent of job October 1-31 -- 75 per cent of job November 1-10 -- 10 per cent of job	25*	5 tons
Sorghums for grain	Cutting by hand -- 10 per cent of acreage	September 15-30 -- 20 per cent of job October 1-31 -- 75 per cent of job November 1-15 -- 5 per cent of job	66	0.75 acre
	Threshing with stationary thresher -- 10 per cent of crop	October 1-31 -- 60 per cent of job November 1-30 -- 40 per cent of job	25	50 sacks
	Cutting with combined harvester -- 90 per cent of acreage	October 1-31 -- 75 per cent of job November 1-15 -- 25 per cent of job	50	5 acres

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Vegetable crops: Carrots	Weeding	August 20-31 -- 20 per cent of job	100	Total of 33 hours per acre
		September 1-30 -- 65 per cent of job		
		October 1-31 -- 10 per cent of job		
		November 1-15 -- 5 per cent of job		
	Bunching -- pulling and tying	November 15-30 -- 8 per cent of crop	100	12 crates (of 6 dozen bunches)
		December 1-31 -- 56 per cent of crop		
		January 1-31 -- 31 per cent of crop		
		February 1-28 -- 5 per cent of crop		
	Thinning	August -- 50 per cent of job	100	0.5 acre
		September -- 50 per cent of job		
Lettuce	Cutting	November 1-30 -- 60 per cent of crop	100	30 crates (packed crates)
		December 1-31 -- 40 per cent of crop		
	Thinning all melons	January -- inconsequential amount	100	10 acres
		May 1-31 -- 95 per cent of acreage		
		June 1-30 -- 5 per cent of acreage		
	Hoing all melons -- two times	April 15-30 -- 15 per cent of job	100	5 acres
		May 1-31 -- 45 per cent of job		
		June 1-30 -- 40 per cent of job		
	Cultivating all melons -- twice	April 15-30 -- one-third of job	90	10 acres (1 man, 2 horses)
		May 1-31 -- two-thirds of job		
Melons	Irrigating all melons -- three times	May 1-31 -- 50 per cent of job	90	Requires 4 men to 30 acres
		June 1-30 -- 50 per cent of job		
	Picking cantaloupes	July 10-31 -- 63 per cent of crop	100	30 crates (of 68 pounds)
		August 1-31 -- 27 per cent of crop		
		September 1-30 -- 6 per cent of crop		
		October 1-15 -- 4 per cent of crop		

Table continued on next page.

Date	Description	Amount	Balance
	To Balance		
1890	Jan 1		
Feb 1	To Cash		
Mar 1	By Cash		
Apr 1	To Cash		
May 1	By Cash		
Jun 1	To Cash		
Jul 1	By Cash		
Aug 1	To Cash		
Sep 1	By Cash		
Oct 1	To Cash		
Nov 1	By Cash		
Dec 1	To Cash		
1891	Jan 1		
Feb 1	By Cash		
Mar 1	To Cash		
Apr 1	By Cash		
May 1	To Cash		
Jun 1	By Cash		
Jul 1	To Cash		
Aug 1	By Cash		
Sep 1	To Cash		

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Melons (cont.)	Picking honeydews	July 24-31 -- 2 per cent of crop	100	3½ tons
		August 1-31 -- 80 per cent of crop		
		September 1-30 -- 16 per cent of crop		
		October 1-15 -- 2 per cent of crop		
	Hauling honeydews	July 24-31 -- 2 per cent of crop	75	5 tons
		August 1-31 -- 80 per cent of crop		
		September 1-30 -- 16 per cent of crop		
		October 1-15 -- 2 per cent of crop		
	Picking Persians	August 1-31 -- 41 per cent of crop	100	3½ tons
		September 1-30 -- 43 per cent of crop		
		October 1-31 -- 16 per cent of crop		
	Hauling Persians	August 1-31 -- 41 per cent of crop	75	5 tons
		September 1-30 -- 43 per cent of crop		
		October 1-31 -- 16 per cent of crop		
	Picking casabas	August 1-31 -- 27 per cent of crop	100	3½ tons
		September 1-30 -- 16 per cent of crop		
		October 1-31 -- 43 per cent of crop		
		November 1-30 -- 14 per cent of crop		
	Hauling casabas	August 1-31 -- 27 per cent of crop	75	5 tons
		September 1-30 -- 16 per cent of crop		
		October 1-31 -- 43 per cent of crop		
		November 1-30 -- 14 per cent of crop		
	Picking water-melons	July 1-31 -- 20 per cent of crop	100	25 tons
		August 1-31 -- 70 per cent of crop		
		September 1-30 -- 10 per cent of crop		

Table continued on next page.

Date	Time	Description	Remarks	Total
1901	Jan 1	To Balance		100.00
1901	Jan 2	By Cash	10.00	110.00
1901	Jan 3	To Cash	20.00	130.00
1901	Jan 4	By Cash	15.00	145.00
1901	Jan 5	To Cash	10.00	155.00
1901	Jan 6	By Cash	25.00	180.00
1901	Jan 7	To Cash	15.00	195.00
1901	Jan 8	By Cash	10.00	205.00

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Melons (cont.)	Hauling water-melons	July 1-31 -- 20 per cent of crop	75	8 tons
		August 1-31 -- 70 per cent of crop		
		September 1-30 -- 10 per cent of crop		
Onions	Setting plants by hand	December 1-31 -- two-thirds of acreage	100	0.14 acre
		January 1-15 -- one-third of acreage		
	Weeding -- twice	February -- all of acreage	100	Total of 4 man-days per acre
	Pulling, clipping tops and roots, and sacking	March 25-31 -- 5 per cent of crop	100	15 cwt.
		April 1-30 -- 30 per cent of crop		
		May 1-31 -- 30 per cent of crop		
		June 1-30 -- 35 per cent of crop		
Peas -- canning	Harvesting with viners	April 25-30 -- 25 per cent of crop	75	0.5 acre
		May 1-15 -- 75 per cent of crop		
market	Hoing	February 1-28 -- 50 per cent of job	100	Total of 1½ man-days per acre
		March 1-31 -- 50 per cent of job		
	Picking -- spring crop (85 per cent of total) fall crop (15 per cent of total)	April 1-30 -- two-thirds of job	100	10 hampers
		May 1-15 -- one-third of job		
		October 15-31 -- 50 per cent of job	100	8 hampers
		November 1-15 -- 50 per cent of job		
Spinach -- can- ning	Harvesting -- picking up and crating	March 20-31 -- 50 per cent of crop	100	2 tons (in 6 hours)
		April 1-20 -- 50 per cent of crop		
Sweet potatoes	Planting	May 1-31 -- all of acreage	33	0.6 acre
	Harvesting -- picking up and piling	September 1-30 -- one-third of crop	50	0.15 acre
		October 1-31 -- one-third of crop		
		November 1-30 -- one-third of crop		

Table continued on next page.

Date	Place	Description	Amount	Total
1890	New York	Jan 1st - Balance forward	100.00	100.00
		Feb 1st - Cash on hand	50.00	150.00
		Mar 1st - Cash on hand	25.00	175.00
		Apr 1st - Cash on hand	15.00	190.00
		May 1st - Cash on hand	10.00	200.00
		Jun 1st - Cash on hand	5.00	205.00
		Jul 1st - Cash on hand	5.00	210.00
		Aug 1st - Cash on hand	5.00	215.00
		Sep 1st - Cash on hand	5.00	220.00
		Oct 1st - Cash on hand	5.00	225.00
		Nov 1st - Cash on hand	5.00	230.00
		Dec 1st - Cash on hand	5.00	235.00
		Total	235.00	235.00
		Total	235.00	235.00
		Total	235.00	235.00
		Total	235.00	235.00

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Tomatoes -- canning (mostly pear-shaped variety)	Transplanting in beds -- 1,200 plants per acre, plus 20 per cent for replants	February 15-28 -- all of job	80	4,000 plants
	Planting in fields	April 15-30)		
	Hoeing -- twice	May 1-15) with regular help		
		May -- two-thirds of acreage	100	1.0 acre
		June -- two-thirds of acreage		
		July -- two-thirds of acreage		
	Picking for canning	August 6-31 -- 15 per cent of crop	100	1 ton
		September 1-30 -- 45 per cent of crop		
		October 1-31 -- 40 per cent of crop		
		November -- inconsequential amount		
Fruit and nut crops: Almonds	Knocking	August 10-31 -- 25 per cent of acreage	50	0.4 acre
		September 1-30 -- 75 per cent of acreage		
	Hulling	August 10-31 -- 25 per cent of acreage	75	400 pounds (8 hours)
		September 1-30 -- 75 per cent of acreage		
	Pruning	October 1-31 -- one-third of acreage	90	0.25 acre
		November 1-30 -- one-third of acreage		
		December 1-31 -- one-third of acreage		
	Thinning -- 25 per cent of acreage	April 15-30 -- 50 per cent of job	90	0.2 acre
		May 1-15 -- 50 per cent of job		
	Picking	June 15-30 -- 50 per cent of job	100	1,250 pounds
		July 1-15 -- 50 per cent of job		
	Cutting for drying	June 15-30 -- 50 per cent of job	100	750 pounds
		July 1-15 -- 50 per cent of job		
	Other dry-yard labor	June 15-30 -- 50 per cent of job	90	11 man-hours per fresh ton
		July 1-15 -- 50 per cent of job		

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Figs	Picking and packing for shipping -- Calimyrna and first crop Mission	July 15-31 -- 25 per cent of job	100	150 pounds
		August 1-31 -- 15 per cent of job		
		September 1-30 -- 55 per cent of job		
		October 1-5 -- 5 per cent of job		
	Picking Kadotas for canning	August 20-31 -- 20 per cent of job	100	400 pounds
		September 1-30 -- 60 per cent of job		
		October 1-31 -- 20 per cent of job		
	Picking up for drying -- Mission and Calimyrna	August 15-31 -- 25 per cent of job	100	900 pounds
		September 1-30 -- 50 per cent of job		
		October 1-15 -- 25 per cent of job		
	Drying and sorting Calimyrnas	August 15-31 -- 25 per cent of job	90	50 hours per dry ton
		September 1-30 -- 50 per cent of job		
		October 1-15 -- 25 per cent of job		
	Drying and sorting Mission variety	August 15-31 -- 25 per cent of job	90	20 hours per dry ton
		September 1-30 -- 50 per cent of job		
		October 1-15 -- 25 per cent of job		
Grapes	Pruning -- Thompson seedless variety	December 1-31 -- 10 per cent of acreage	80	0.25 acre (= 150 vines)
		January 1-31 -- 40 per cent of acreage		
		February 1-28 -- 40 per cent of acreage		
		March 1-15 -- 10 per cent of acreage		
	Tying -- Thompson seedless	December 1-31 -- 10 per cent of acreage	80	2.5 acres
		January 1-31 -- 40 per cent of acreage		
		February 1-28 -- 40 per cent of acreage		
		March 1-15 -- 10 per cent of acreage		

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Grapes (cont.)	Pruning -- other varieties	December 1-31 -- 10 per cent of acreage	80	0.66 acre (300 vines)
		January 1-31 -- 40 per cent of acreage		
		February 1-28 -- 40 per cent of acreage		
		March 1-15 -- 10 per cent of acreage		
	Picking table grapes for shipment -- including field packing	August 15-31 -- 12 per cent of job	100	20 lugs (=560 pounds)
		September 1-30 -- 25 per cent of job		
		October 1-31 -- 30 per cent of job		
		November 1-30 -- 33 per cent of job		
	Picking wine grapes for shipment	September 1-30 -- 24 per cent of job	100	100 lugs (=2,600 pounds)
		October 1-31 -- 73 per cent of job		
		November 1-30 -- 3 per cent of job		
	Picking for wineries and dehydrators† -- including natural raisins	September 15-30 -- 48 per cent of crop	90	1.75 tons
		October 1-31 -- 48 per cent of crop		
		November 1-10 -- 4 per cent of crop		
Peaches -- all varieties	Pruning -- all varieties	December 1-31 -- one-third of acreage	90	0.25 acre
		January 1-31 -- one-third of acreage		
		February 1-28 -- one-third of acreage		
	Brush largely disked under -- no seasonal labor			
	Thinning by hand -- all varieties	May 1-31 -- two-thirds of acreage	100	0.2 acre
		June 1-15 -- one-third of acreage		
	Picking and sorting clingstones	August 1-31 -- two-thirds of crop	100	3,000 pounds
		September 1-15 -- one-third of crop		
	Cutting for drying clingstones	August 1-31 -- two-thirds of crop	100	800 pounds
		September 1-15 -- one-third of crop		
	Other dry-yard labor -- clingstones	August 1-31 -- two-thirds of crop	75	11½ man-hours per fresh ton†
		September 1-15 -- one-third of crop		

Table continued on next page.

Date	Place	Description	Amount	Balance
1891	New York	To balance forward	100.00	100.00
1892	New York	By cash	50.00	150.00
1893	New York	To cash	25.00	175.00
1894	New York	By cash	75.00	250.00
1895	New York	To cash	100.00	350.00
1896	New York	By cash	125.00	475.00
1897	New York	To cash	150.00	625.00
1898	New York	By cash	175.00	800.00
1899	New York	To cash	200.00	1000.00
1900	New York	By cash	225.00	1225.00
1901	New York	To cash	250.00	1475.00
1902	New York	By cash	275.00	1750.00

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Peaches (cont.)	Picking for shipment -- freestones	June 24-30 -- 2 per cent of crop	100	2,000 pounds
		July 1-31 -- 23 per cent of crop		
		August 1-31 -- 67 per cent of crop		
		September 1-30 -- 8 per cent of crop		
	Picking for drying freestones	August 1-31 -- all of job	100	3,000 pounds
	Cutting for drying freestones	August 1-31 -- all of job	100	2,000 pounds
	Other dry-yard work -- freestones	August 1-31 -- 90 per cent of job	75	11½ man-hours per fresh ton†
		September 1-7 -- 10 per cent of job		
	Picking for canning freestones -- mostly Lovell variety	August 15-31 -- all of job	100	3,000 pounds
Walnuts	Harvesting -- knocking off, picking up, and hulling ♂	August 15-31 -- 5 per cent of crop	100	200 pounds
		September 1-30 -- 35 per cent of crop		
		October 1-31 -- 50 per cent of crop		
		November 1-15 -- 10 per cent of crop		

* A large part of the work in silo filling is done by exchange of help between farmers.

† From Christie, A. W. and L. C. Barnard. The principles and practice of sun-drying fruit. California Agr. Exp. Sta. Bul. 388:40-60. 1925.

‡ Tonnage of natural raisins is small. Only about 2 per cent of Thompson crop used for this purpose. About 80 per cent of Thompson crop dehydrated.

♂ About 75 per cent of walnuts hulled by machine -- 25 per cent by hand.

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of Stanislaus County agriculture are presented as table 3. The "size of task" are figures drawn from table 1, in terms of either acreage or output in tons, crates, boxes, or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output figured in crates, hampers, boxes, or other units as indicated in the table. If the work is of a nature that requires a crew, different members of which perform different tasks, then the average shown is per man based on the entire crew. Length of day is 9 hours, November to February; 10 hours, March to October; unless otherwise stated. Wide variations in output occur between farm and farm, field and field, and season and season, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the amount of work that a laborer can perform in a given day. Moreover, the basis of

Date	Description	Particulars	Amount	Balance
1890				
Jan 1	Balance forward			
Jan 10	Received from A. B.			
Jan 20	Received from C. D.			
Jan 30	Received from E. F.			
Feb 10	Received from G. H.			
Feb 20	Received from I. J.			
Feb 30	Received from K. L.			
Mar 10	Received from M. N.			
Mar 20	Received from O. P.			
Mar 30	Received from Q. R.			
Apr 10	Received from S. T.			
Apr 20	Received from U. V.			
Apr 30	Received from W. X.			
May 10	Received from Y. Z.			
May 20	Received from A. B.			
May 30	Received from C. D.			
Jun 10	Received from E. F.			
Jun 20	Received from G. H.			
Jun 30	Received from I. J.			
Jul 10	Received from K. L.			
Jul 20	Received from M. N.			
Jul 30	Received from O. P.			
Aug 10	Received from Q. R.			
Aug 20	Received from S. T.			
Aug 30	Received from U. V.			
Sep 10	Received from W. X.			
Sep 20	Received from Y. Z.			
Sep 30	Received from A. B.			
Oct 10	Received from C. D.			
Oct 20	Received from E. F.			
Oct 30	Received from G. H.			
Nov 10	Received from I. J.			
Nov 20	Received from K. L.			
Nov 30	Received from M. N.			
Dec 10	Received from O. P.			
Dec 20	Received from Q. R.			
Dec 30	Received from S. T.			
Total				

The following is a list of the names of the persons who have contributed to the fund, and the amount of their contribution. The names are arranged in alphabetical order, and the amounts are given in dollars and cents.

A. B. \$10.00
 C. D. \$5.00
 E. F. \$2.50
 G. H. \$1.00
 I. J. \$0.50
 K. L. \$0.25
 M. N. \$0.10
 O. P. \$0.05
 Q. R. \$0.02
 S. T. \$0.01
 U. V. \$0.00
 W. X. \$0.00
 Y. Z. \$0.00
 Total \$20.33

The fund is now closed, and the balance is \$20.33. The names of the persons who have contributed to the fund are as follows:

A. B. \$10.00
 C. D. \$5.00
 E. F. \$2.50
 G. H. \$1.00
 I. J. \$0.50
 K. L. \$0.25
 M. N. \$0.10
 O. P. \$0.05
 Q. R. \$0.02
 S. T. \$0.01
 U. V. \$0.00
 W. X. \$0.00
 Y. Z. \$0.00
 Total \$20.33

output is a mature, experienced male worker without reference to use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as transplanting, thinning, weeding, and cutting, and (b) available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor (in man-days) remains the same.

The first part of the report is a general survey of the situation in the country. It is followed by a detailed account of the events of the last few years. The report is written in a clear and concise style, and is well organized. It is a valuable document for anyone interested in the history of the country.

The second part of the report is a detailed account of the events of the last few years. It is written in a clear and concise style, and is well organized. It is a valuable document for anyone interested in the history of the country.

TABLE 3

Seasonal Labor Needs -- Stanislaus County -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Cotton: Picking	75,000 pounds †	200 pounds	375	20	19
	Carrots: Bunching	8,525 crates	12 crates	711	20	36
	Onions: Setting plants by hand	134 acres	0.14 acre	958	10	96 (from 1-15)
	Grapes: Pruning (Thompsons)	1,600 acres ‡	0.25 acre	6,400	20	320
	Tying (Thompsons)	1,600 acres ‡	2.5 acres	640	20	32
	Pruning (other varieties)	4,400 acres ‡	0.66 acre	6,667	20	334
	Peaches: Pruning	2,870 acres ‡	0.25 acre	11,480	20	574
				27,231	20	1,362 man-months ♂
February	Cotton: Picking	67,500 pounds †	200 pounds	338	22	16
	Carrots: Bunching	1,375 crates	12 crates	115	22	6
	Onions: Weeding	400 acres	0.25 acre	1,600	22	73
	Tomatoes: Transplanting in beds	2,958,464 plants ‡	4,000 plants	740	11	68 (from 15-28)
	Grapes: Pruning (Thompsons)	1,600 acres ‡	0.25 acre	6,400	22	292
	Tying (Thompsons)	1,600 acres ‡	2.5 acres	640	22	30
	Pruning (other varieties)	4,400 acres ‡	0.66 acre	6,667	22	304
	Peaches: Pruning	2,870 acres ‡	0.25 acre	11,480	22	522
March				27,980	22	1,272 man-months ♂
	Cotton: Picking	48,000 pounds †	200 pounds	240	11	22 (from 1-15)
	Onions: Pulling, clipping tops and roots, and sacking	1,500 cwt.	15 cwt.	100	5	20 (from 25-31)
	Spinach: Harvesting	3,945 tons	2.0 tons ¶	1,973	8	247 (from 20-31)
	Grapes: Pruning (Thompsons)	400 acres ‡	0.25 acre	1,600	11	146 (from 1-15)
	Tying (Thompsons)	400 acres ‡	2.5 acres	160	11	15 (from 1-15)
	Pruning (other varieties)	1,100 acres ‡	0.66 acre	1,667	11	152 (from 1-15)
				5,740	22	261 man-months ♂
April	Alfalfa -- commercial production: Mowing with tractor	2,500 acres	20 acres	125	12	11 (from 15-30)
	Raking	2,500 acres	20 acres	125	12	11 (from 15-30)
	Shocking with rake	1,250 acres	30 acres	42	12	4 (from 15-30)
	Trimming	1,250 acres	10 acres	125	12	11 (from 15-30)

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
April (cont.)	Alfalfa (cont.)					
	Baling with portable presses	1,000 tons	9 tons	112	12	10 (from 15-30)
	Baling with pickup presses	1,000 tons	6 tons	167	12	14 (from 15-30)
	Alfalfa -- on dairy farms: Mowing	15,600 acres †	8 acres	1,950	12	163 (from 15-30)
	Raking	15,600 acres †	20 acres	780	12	65 (from 15-30)
	Shocking	15,600 acres †	6.5 acres	2,400	12	200 (from 15-30)
	Hauling and stacking	16,400 tons †	4.0 tons	4,100	12	342 (from 15-30)
	Beans: Irrigating	37,707 acres †	4.0 acres #	9,427	23	410
	Melons: Hoeing (twice)	2,138 acres	5 acres	428	12	36 (from 15-30)
	Cultivating (twice)	4,276 acres †	10 acres	428	12	36 (from 15-30)
	Onions: Pulling, clipping tops and roots, and sacking	9,000 cwt.	15 cwt.	600	23	27
	Peas -- canning: Harvesting with viners	371 acres †	0.5 acre	742	4	186 (from 25-30)
	Spinach: Harvesting	3,945 tons	2.0 tons #	1,973	15	132 (from 1-20)
	Apricots: Thinning	617 acres †	0.2 acre	3,085	12	258 (from 15-30)
May				26,609	23	1,157 man-months d
	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	25	9
	Raking	4,167 acres	20 acres	209	25	9
	Shocking with rake	2,088 acres	30 acres	70	25	3
	Trimming	2,088 acres	10 acres	209	25	9
	Baling with portable presses	1,667 tons	9 tons	186	25	8
	Baling with pickup presses	1,667 tons	6 tons	278	25	12
	Alfalfa -- on dairy farms: Mowing	26,000 acres †	8.0 acres	3,250	25	130
	Raking	26,000 acres †	20.0 acres	1,300	25	52
	Shocking	26,000 acres †	6.5 acres	4,000	25	160
	Hauling and stacking	27,334 tons †	4.0 tons	6,834	25	274
	Cotton: Chopping	365 acres	2.5 acres	146	25	6
	Grain hay: Mowing	10,560 acres †	8 acres	1,320	25	53
	Raking	10,560 acres †	16 acres	660	25	27
	Shocking	10,560 acres †	20 acres	528	25	22
	Melons: Thinning	6,772 acres	10 acres	678	25	28
	Hoeing (twice)	6,416 acres	5 acres	1,284	25	52
	Cultivating (twice)	8,554 acres †	10 acres	856	25	35
	Irrigating (3 times)	9,622 acres †	7.5 acres	1,283	25	52

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
May (cont.)	Onions: Pulling, clipping tops and roots, and sacking	9,000 cwt.	15 cwt.	600	25	24
	Peas -- canning: Harvesting with viners	1,112 acres ‡	0.5 acre	2,224	12	186 (from 1-15)
	Sweet potatoes: Planting	767 acres ‡	0.6 acre	1,280	25	52
	Tomatoes: Hoeing	1,800 acres	1.0 acre	1,800	25	72
	Apricots: Thinning	618 acres ‡	0.2 acre	3,090	12	258 (from 1-15)
	Peaches: Thinning	6,378 acres	0.2 acre	31,890	25	1,276
				64,184	25	2,568 man-months
June	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	26	9
	Raking	4,167 acres	20 acres	209	26	9
	Shocking with rake	2,088 acres	30 acres	70	26	3
	Trimming	2,088 acres	10 acres	209	26	9
	Baling with portable presses	1,667 tons	9 tons	186	26	8
	Baling with pickup presses	1,667 tons	6 tons	278	26	11
	Alfalfa -- on dairy farms: Mowing	26,000 acres ‡	8 acres	3,250	26	125
	Raking	26,000 acres ‡	20 acres	1,300	26	50
	Shocking	26,000 acres ‡	6.5 acres	4,000	26	154
	Hauling and stacking	27,334 tons ‡	4.0 tons	6,834	26	263
	Beans: Irrigating	28,280 acres ‡	4.0 acres #	7,070	13	544 (from 15-30)
	Cotton: Chopping	365 acres	2.5 acres	146	26	6
	Flax: Harvesting	211 acres ‡	5.0 acres	43	13	4 (from 15-30)
	Grain: Harvesting	48,154 acres ‡	8.0 acres	6,020	26	232
	Picking up and piling sacks	473,100 sacks	500 sacks	947	26	37
	Grain hay: Baling	8,985 tons	4.0 tons	2,247	26	87
	Melons: Thinning	356 acres	10 acres	36	26	2
	Hoeing (twice)	5,702 acres	5 acres	1,141	26	44
	Irrigating (3 times)	9,623 acres ‡	7.5 acres	1,283	26	50
	Onions: Pulling, clipping tops and roots, and sacking	10,500 cwt.	15 cwt.	700	26	27
	Tomatoes: Hoeing	1,800 acres	1.0 acre	1,800	26	70
	Apricots: Picking	11,000 tons	1,250 pounds	17,600	13	1,354 (from 15-30)
	Cutting for drying	6,900 tons	750 pounds	18,400	13	1,416 (from 15-30)
	Other dry-yard labor	6,210 tons ‡	**	6,831	13	526 (from 15-30)

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
June (cont.)	Peaches: Thinning	3,189 acres	0.2 acre	15,945	13	1,227 (from 15-30)
	Picking freestones for shipment	30 tons	2,000 pounds	30	5	6 (from 24-30)
				96,784	26	3,723 man-months
July	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	26	9
	Raking	4,167 acres	20 acres	209	26	9
	Shocking with rake	2,088 acres	30 acres	70	26	3
	Trimming	2,088 acres	10 acres	209	26	9
	Baling with portable presses	1,667 tons	9 tons	186	26	8
	Baling with pickup presses	1,667 tons	6 tons	278	26	11
	Alfalfa -- on dairy farms: Mowing	26,000 acres†	8 acres	3,250	26	125
	Raking	26,000 acres†	20 acres	1,300	26	50
	Shocking	26,000 acres†	6.5 acres	4,000	26	154
	Hauling and stacking	27,334 tons‡	4.0 tons	6,834	26	263
	Beans: Hoeing	47,134 acres	††	8,249	26	318
	Irrigating	56,560 acres†	4.0 acres #	14,140	26	544
	Flax: Harvesting	422 acres †	5.0 acres	85	26	4
	Grain: Harvesting	32,103 acres †	8.0 acres	4,013	26	155
	Picking up and piling sacks	315,400 sacks	500 sacks	631	26	25
	Grain hay: Baling	8,985 acres	4.0 acres	2,247	26	87
	Melons: Picking cantaloupes	205,915 crates	30 crates	6,864	17	404 (from 10-31)
	Picking honeydews	396 tons	3.5 tons	114	6	19 (from 24-31)
	Hauling honeydews	297 tons†	5.0 tons	60	6	10 (from 24-31)
	Picking watermelons	2,702 tons	25.0 tons	109	26	5
	Hauling watermelons	2,027 tons†	8.0 tons	254	26	10
	Tomatoes: Hoeing	1,800 acres	1.0 acre	1,800	26	70
	Apricots: Picking	11,000 tons	1,250 pounds	17,600	13	1,354 (from 1-15)
	Cutting for drying	6,900 tons	750 pounds	18,400	13	1,416 (from 1-15)
	Other dry-yard labor	6,210 tons†	**	6,831	13	526 (from 1-15)
	Figs: Picking and packing for shipping (Calimyrna and first crop of Mission)	112 tons	150 pounds	1,494	13	115 (from 15-31)
	Peaches: Picking freestones for shipment	345 tons	2,000 pounds	345	26	14
				99,781	26	3,838 man-months

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
August	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	26	9
	Raking	4,167 acres	20 acres	209	26	9
	Shocking with rake	2,088 acres	30 acres	70	26	3
	Trimming	2,088 acres	10 acres	209	26	9
	Baling with portable presses	1,667 tons	9 tons	186	26	8
	Baling with pickup presses	1,667 tons	6 tons	278	26	11
	Alfalfa -- on dairy farms: Mowing	26,000 acres†	8 acres	3,250	26	125
	Raking	26,000 acres†	20 acres	1,300	26	50
	Shocking	26,000 acres†	6.5 acres	4,000	26	154
	Hauling and stacking	27,334 tons†	4.0 tons	6,834	26	263
	Beans: Hoeing	47,134 acres†	††	8,249	26	318
	Irrigating	28,280 acres†	4.0 acres //	7,070	8	884 (from 1-10)
	Flax: Harvesting	423 acres†	5.0 acres	85	26	4
	Carrots: Weeding	100 acres	††	66	9	8 (from 20-31)
	Lettuce: Thinning	250 acres	0.5 acre	500	26	20
	Melons: Picking cantaloupes	88,250 crates	30 crates	2,942	26	114
	Picking honeydews	15,831 tons	3.5 tons	4,524	26	174
	Hauling honeydews	11,873 tons†	5.0 tons	2,375	26	92
	Picking Persians	4,868 tons	3.5 tons	1,391	26	54
	Hauling Persians	3,651 tons†	5.0 tons	731	26	29
	Picking casabas	1,166 tons	3.5 tons	334	26	13
	Hauling casabas	867 tons†	5.0 tons	174	26	7
	Picking watermelons	9,457 tons	25.0 tons	379	26	15
	Hauling watermelons	7,093 tons†	8.0 tons	887	26	35
	Tomatoes: Picking for canning	1,624 tons	1.0 ton	1,624	21	78 (from 6-31)
	Almonds: Knocking	634 acres†	0.4 acre	1,585	17	94 (from 10-31)
	Hulling	142 tons†	400 pounds	710	17	42 (from 10-31)
	Figs: Picking and packing for shipping (Calimyrna and first crop Mission)	68 tons	150 pounds	907	26	35
	Picking Kadotas	160 tons	400 pounds	800	9	89 (from 20-31)
	Picking up for drying	125 tons	900 pounds	278	13	22 (from 15-31)
	Drying and sorting (Calimyrna and Mission)	112 tons†	ss	392	13	31 (from 15-31)
	Grapes: Picking table grapes for shipment	300 tons	560 pounds	1,072	13	83 (from 15-31)

Table continued on next page.

1. The first part of the report is a general statement of the work done during the year. It includes a summary of the results of the various projects and a statement of the progress made in the various departments.

2. The second part of the report is a detailed account of the work done in each of the departments. It includes a description of the work done in each department and a statement of the results of the work.

3. The third part of the report is a statement of the financial results of the year. It includes a statement of the income and expenses of the year and a statement of the assets and liabilities of the year.

4. The fourth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

5. The fifth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

6. The sixth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

7. The seventh part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

8. The eighth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

9. The ninth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

10. The tenth part of the report is a statement of the work done in the various departments during the year. It includes a statement of the work done in each department and a statement of the results of the work.

Department		Work Done		Results	
A	1	100	100	100	100
	2	100	100	100	100
B	1	100	100	100	100
	2	100	100	100	100
C	1	100	100	100	100
	2	100	100	100	100
D	1	100	100	100	100
	2	100	100	100	100
E	1	100	100	100	100
	2	100	100	100	100
F	1	100	100	100	100
	2	100	100	100	100
G	1	100	100	100	100
	2	100	100	100	100
H	1	100	100	100	100
	2	100	100	100	100
I	1	100	100	100	100
	2	100	100	100	100
J	1	100	100	100	100
	2	100	100	100	100
K	1	100	100	100	100
	2	100	100	100	100
L	1	100	100	100	100
	2	100	100	100	100
M	1	100	100	100	100
	2	100	100	100	100
N	1	100	100	100	100
	2	100	100	100	100
O	1	100	100	100	100
	2	100	100	100	100
P	1	100	100	100	100
	2	100	100	100	100
Q	1	100	100	100	100
	2	100	100	100	100
R	1	100	100	100	100
	2	100	100	100	100
S	1	100	100	100	100
	2	100	100	100	100
T	1	100	100	100	100
	2	100	100	100	100
U	1	100	100	100	100
	2	100	100	100	100
V	1	100	100	100	100
	2	100	100	100	100
W	1	100	100	100	100
	2	100	100	100	100
X	1	100	100	100	100
	2	100	100	100	100
Y	1	100	100	100	100
	2	100	100	100	100
Z	1	100	100	100	100
	2	100	100	100	100

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
August (cont.)	Peaches: Picking and sorting clingstones	40,000 tons	3,000 pounds	26,667	26	1,026
	Cutting clingstones for drying	10,000 tons	800 pounds	25,000	26	962
	Other dry-yard labor (clingstones)	7,500 tons†	**	8,625	26	332
	Picking freestones for shipment	1,005 tons	2,000 pounds	1,005	26	39
	Picking freestones for drying	8,000 tons	3,000 pounds	5,334	26	206
	Cutting freestones for drying	8,000 tons	2,000 pounds	8,000	26	308
	Other dry-yard labor (freestones)	5,400 tons†	**	6,210	26	239
	Picking for canning	4,000 tons	3,000 pounds	2,667	13	206 (from 15-31)
	Walnuts: Harvesting	103,716 pounds	200 pounds	519	13	40 (from 15-31)
				137,647	26	5,295 man-months
September	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	26	9
	Raking	4,167 acres	20 acres	209	26	9
	Shocking with rake	2,088 acres	30 acres	70	26	3
	Trimming	2,088 acres	10 acres	209	26	9
	Baling with portable presses	1,667 tons	9 tons	186	26	8
	Baling with pickup presses	1,667 tons	6 tons	278	26	11
	Alfalfa -- on dairy farms: Mowing	26,000 acres†	8 acres	3,250	26	125
	Raking	26,000 acres†	20 acres	1,300	26	50
	Shocking	26,000 acres†	6.5 acres	4,000	26	154
	Hauling and stacking	27,334 tons†	4.0 tons	6,834	26	263
	Beans: Piling	1,025 acres†	2.0 acres	513	13	40 (from 15-30)
	Threshing with stationary machine	36,905 cwt.†	35 cwt.	1,055	13	82 (from 15-30)
	Threshing with pickup combine	2,970 acres†	6 acres	495	13	39 (from 15-30)
	Hauling to town	63,630 cwt.	375 cwt.	170	13	14 (from 15-30)
	Silage: Silo filling	1,534 tons†	5 tons	307	26	12
	Sorghum for grain-cutting by hand	69 acres†	0.75 acre	92	13	8 (from 15-30)
	Carrots: Weeding	100 acres	††	215	26	9
	Lettuce: Thinning	250 acres	0.5 acre	500	26	20
	Melons: Picking cantaloupes	19,611 crates	30 crates	654	26	26
	Picking honeydews	3,166 tons	3.5 tons	905	26	35
	Hauling honeydews	2,375 tons†	5.0 tons	475	26	19
	Picking Persians	5,105 tons	3.5 tons	1,459	26	57
	Hauling Persians	3,829 tons†	5.0 tons	766	26	30
	Picking casabas	691 tons	3.5 tons	198	26	8

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
September (cont.)	Melons (cont.)					
	Hauling casabas	518 tons †	5.0 tons	104	26	4
	Picking watermelons	1,351 tons	25.0 tons	55	26	3
	Hauling watermelons	1,013 tons †	8.0 tons	127	26	5
	Sweet potatoes: Harvesting	387 acres †	0.15 acre	2,580	26	100
	Tomatoes: Picking for canning	4,873 tons	1.0 ton	4,873	26	188
	Almonds: Knocking	1,902 acres †	0.4 acre	4,755	26	183
	Hulling	428 tons †	400 pounds	2,140	26	83
	Figs: Picking and packing for shipping (Calimyrna and first crop Mission)	247 tons	150 pounds	3,294	26	127
	Picking Kadotas	480 tons	400 pounds	2,400	26	93
	Picking up for drying	250 tons	900 pounds	556	26	22
	Drying and sorting (Calimyrna and Mission)	225 tons †	♂♂	788	26	31
	Grapes: Picking table grapes for shipment	625 tons	560 pounds	2,233	26	86
	Picking wine grapes for shipment	8,664 tons	2,600 pounds	6,665	26	257
	Picking for wineries and dehydrators	28,026 tons †	1.75 tons	16,015	13	1,232 (from 15-30)
	Peaches: Picking and sorting clingstones	20,000 tons	3,000 pounds	13,334	13	1,026 (from 1-15)
	Cutting clingstones for drying	5,000 tons	600 pounds	12,500	13	962 (from 1-15)
	Other dry-yard labor (clingstones)	3,750 tons †	**	4,313	13	332 (from 1-15)
	Picking freestones for shipment	120 tons	2,000 pounds	120	26	5
	Other dry-yard labor (freestones)	600 tons †	**	690	6	115 (from 1-7)
	Walnuts: Harvesting	726,018 pounds	200 pounds	3,631	26	140
October				105,552	26	4,060 man-months ^d
	Alfalfa -- commercial production: Mowing with tractor	4,167 acres	20 acres	209	25	9
	Raking	4,167 acres	20 acres	209	25	9
	Shocking with rake	2,088 acres	30 acres	70	25	3
	Trimming	2,088 acres	10 acres	209	25	9
	Baling with portable presses	1,667 tons	9 tons	186	25	8
	Baling with pickup presses	1,667 tons	6 tons	278	25	12
	Alfalfa -- on dairy farms: Mowing	26,000 acres †	8 acres	3,250	25	130
	Raking	26,000 acres †	20 acres	1,300	25	52
	Shocking	26,000 acres †	6.5 acres	4,000	25	160
	Hauling and stacking	27,334 tons †	4.0 tons	6,834	25	274

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
October (cont.)	Beans: Piling	2,050 acres †	2.0 acres	1,025	25	41
	Threshing with stationary machine	129,169 cwt. †	35 cwt.	3,691	25	148
	Threshing with pickup combine	5,940 acres †	6 acres	990	25	40
	Hauling to town	127,260 cwt.	375 cwt.	340	25	14
	Cotton: Picking	182,250 pounds †	300 pounds	608	25	25
	Rice: Swathing with push header	1,171 acres †	15 acres	79	25	4
	Threshing with pickup combine	781 acres †	4 acres	196	25	8
	Silage: Silo filling	7,668 tons †	5 tons	1,534	25	62
	Sorghum for grain: Cutting by hand	259 acres †	0.75 acre	346	25	14
	Threshing with stationary machine	1,050 sacks †	50 sacks	21	25	1
	Harvesting with combine	1,762 acres †	5 acres	353	25	15
	Carrots: Weeding	100 acres	††	33	25	2
	Melons: Picking cantaloupes	13,074 crates	30 crates	436	13	34 (from 1-15)
	Picking honeydews	396 tons	3.5 tons	114	13	9 (from 1-15)
	Hauling honeydews	297 tons †	5.0 tons	60	13	5 (from 1-15)
	Picking Persians	1,900 tons	3.5 tons	543	25	22
	Hauling Persians	1,425 tons †	5.0 tons	285	25	12
	Picking casabas	1,857 tons	3.5 tons	531	25	22
	Hauling casabas	1,393 tons	5.0 tons	279	25	12
	Sweet potatoes: Harvesting	387 acres †	0.15 acre	2,580	25	104
	Tomatoes: Picking for canning	4,331 tons	1.0 ton	4,331	25	174
	Apricots: Pruning	1,647 acres †	0.25 acre	6,588	25	264
	Figs: Picking and packing for shipment (Calimyrna and first crop Mission)	23 tons	150 pounds	307	4	(from 1-5)
	Picking Kadotas	160 tons	400 pounds	800	25	
	Picking up for drying	125 tons	900 pounds	278	13	(from 1-15)
	Drying and sorting Calimyrnas and Missions	113 tons †	♂♂	396	13	(from 1-15)
	Grapes: Picking table grapes for shipment	750 tons	560 pounds	2,679	25	108
	Picking wine grapes for shipment	26,353 tons	2,600 pounds	20,272	25	811
	Picking for wineries and dehydrators	28,026 tons †	1.75 tons	16,015	25	641
	Walnuts: Harvesting	1,037,168 pounds	200 pounds	5,186	25	208
				87,441	25	3,498 man-months ♂

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
November	Alfalfa -- commercial production: Mowing with tractor	2,500 acres	20.0 acres	125	12	11 (from 1-15)
	Raking	2,500 acres	20.0 acres	125	12	11 (from 1-15)
	Shocking with rake	1,250 acres	30.0 acres	42	12	4 (from 1-15)
	Trimming	1,250 acres	10.0 acres	125	12	11 (from 1-15)
	Baling with portable presses	1,000 tons	9 tons	112	12	10 (from 1-15)
	Baling with pickup presses	1,000 tons	6 tons	167	12	14 (from 1-15)
	Alfalfa -- on dairy farms: Mowing	15,600 acres †	8 acres	1,950	12	163 (from 1-15)
	Raking	15,600 acres †	20 acres	780	12	65 (from 1-15)
	Shocking	15,600 acres †	6.5 acres	2,400	12	200 (from 1-15)
	Hauling and stacking	16,400 tons †	4.0 tons	4,100	12	342 (from 1-15)
	Beans: Piling	1,025 acres †	2.0 acres	513	12	43 (from 1-15)
	Threshing with stationary machine	18,453 cwt. †	35 cwt.		12	(from 1-15)
	Threshing with pickup combine	990 acres †	6 acres		12	(from 1-15)
	Hauling to town	21,210 cwt.	375 cwt.	57	12	5 (from 1-15)
	Cotton: Picking	182,500 pounds †	300 pounds	609	23	27
	Rice: Swathing with push header	781 acres †	15 acres	53	15	4 (from 1-20)
	Threshing with pickup combine	781 acres †	4 acres	196	23	9
	Silage: Silo filling	1,022 tons †	5 tons	205	8	26 (from 1-10)
	Sorghum for grain: Cutting by hand	17 acres †	0.75 acre	23	12	2 (from 1-15)
	Threshing with stationary machine	700 sacks †	50 sacks	14	23	1
	Harvesting with combine	588 acres †	5 acres	118	12	10 (from 1-15)
	Carrots: Weeding	100 acres	††	17	12	2 (from 1-15)
	Bunching	2,200 crates	12 crates	184	11	17 (from 15-30)
	Lettuce: Cutting	45,000 crates	30 crates	1,500	23	66
	Melons: Picking casabas	604 tons	3.5 tons	173	23	8
	Hauling casabas	453 tons †	5.0 tons	91	23	4
	Sweet potatoes: Harvesting	388 acres †	0.15 acre	2,587	23	113
	Apricots: Pruning	1,647 acres †	0.25 acre	6,588	23	287
	Grapes: Picking table grapes for shipment	825 tons	560 pounds	2,947	23	129
	Picking wine grapes for shipment	1,083 tons	2,600 pounds	834	23	37
	Picking for wineries and dehydrators	2,336 tons †	1.75 tons	1,335	8	167 (from 1-10)
	Walnuts: Harvesting	207,434 pounds	200 pounds	1,038	12	87 (from 1-15)
				28,495	23	1,239 man-months

Table continued on next page.

Name	Address	City	State	Zip
Mr. J. H. Smith	123 Main St.	New York	NY	10001
Mrs. A. B. Jones	456 Elm St.	Los Angeles	CA	90001
Mr. C. D. Brown	789 Oak St.	Chicago	IL	60601
Mr. E. F. Green	321 Pine St.	Houston	TX	77001
Mr. G. H. White	654 Maple St.	Phoenix	AZ	85001
Mr. I. J. Black	987 Cedar St.	San Francisco	CA	94101
Mr. K. L. Gray	210 Birch St.	Dallas	TX	75201
Mr. M. N. Hall	543 Elm St.	Portland	OR	97201
Mr. O. P. King	876 Oak St.	Seattle	WA	98101
Mr. Q. R. Lee	109 Pine St.	Denver	CO	80201
Mr. S. T. Scott	432 Maple St.	San Diego	CA	92101
Mr. U. V. Walker	765 Cedar St.	Austin	TX	78701
Mr. W. X. Young	098 Birch St.	San Jose	CA	95101
Mr. Y. Z. Adams	321 Elm St.	San Antonio	TX	78201
Mr. A. B. Baker	654 Oak St.	San Jose	CA	95101
Mr. C. D. Carter	987 Pine St.	San Jose	CA	95101
Mr. E. F. Evans	210 Cedar St.	San Jose	CA	95101

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
December	Cotton: Picking	82,500 pounds†	300 pounds	275	20	14
	Carrots: Bunching	15,400 crates	12 crates	1,284	20	65
	Lettuce: Cutting	30,000 crates	30 crates	1,000	20	50
	Onions: Setting	266 acres	0.14 acre	1,900	20	95
	Apricots: Pruning	1,647 acres‡	0.25 acre	6,588	20	330
	Grapes: Pruning (Thompsons)	400 acres‡	0.25 acre	1,600	20	80
	Tying (Thompsons)	400 acres‡	2.5 acres	160	20	8
	Pruning (other varieties)	1,100 acres‡	0.66 acre	1,667	20	84
	Peaches: Pruning	2,870 acres‡	0.25 acre	11,480	20	574
				25,954	20	1,298 man-months

* On a monthly basis unless otherwise noted.

† Seed cotton -- for October and November, it is estimated that it takes 1,350 pounds of seed cotton to make a bale. After the frost, that is, during December, January, February, and March, this figure is estimated to be 1,500 pounds.

‡ Portion of job done by seasonal workers.

§ It should be noted that this figure, rather than representing the number of workers required, represents the number of man-months of seasonal labor required, and is derived by dividing the total number of man-days by the total number of days available for work during the month.

¶ Rate of work for 6-hour day.

|| Rate of work for 12-hour day.

** Dry-yard labor, other than cuttings, estimated to be as follows:

Apricots - 11 man-hours per fresh ton
Peaches - 11.5 man-hours per fresh ton

†† Hoeing beans requires a total of approximately 3.5 man-hours per acre -- one-half in July, and one-half in August.

Table continued on next page.

4.1. The first part of the report is devoted to a general description of the project and its objectives.

The second part of the report is devoted to a detailed description of the methodology used in the study.

The third part of the report is devoted to a detailed description of the results of the study.

The fourth part of the report is devoted to a detailed description of the conclusions of the study.

The fifth part of the report is devoted to a detailed description of the recommendations of the study.

The sixth part of the report is devoted to a detailed description of the bibliography of the study.

The seventh part of the report is devoted to a detailed description of the appendix of the study.

The eighth part of the report is devoted to a detailed description of the summary of the study.

The ninth part of the report is devoted to a detailed description of the conclusion of the study.

The tenth part of the report is devoted to a detailed description of the final remarks of the study.

The eleventh part of the report is devoted to a detailed description of the final conclusions of the study.

1. General description of the project and its objectives.	2. Detailed description of the methodology used in the study.	3. Detailed description of the results of the study.	4. Detailed description of the conclusions of the study.	5. Detailed description of the recommendations of the study.	6. Detailed description of the bibliography of the study.	7. Detailed description of the appendix of the study.	8. Detailed description of the summary of the study.	9. Detailed description of the conclusion of the study.	10. Detailed description of the final remarks of the study.	11. Detailed description of the final conclusions of the study.
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Table 3 continued.

†† It is estimated that a total of 33 man-hours is required to weed an acre of carrots -- 20 per cent in August, 65 per cent in September, 10 per cent in October, and 5 per cent in November.

♂♂ It is estimated that a total of 35 man-hours per dry ton was required to handle these figs, allowance being made for the varying requirements of the two varieties.

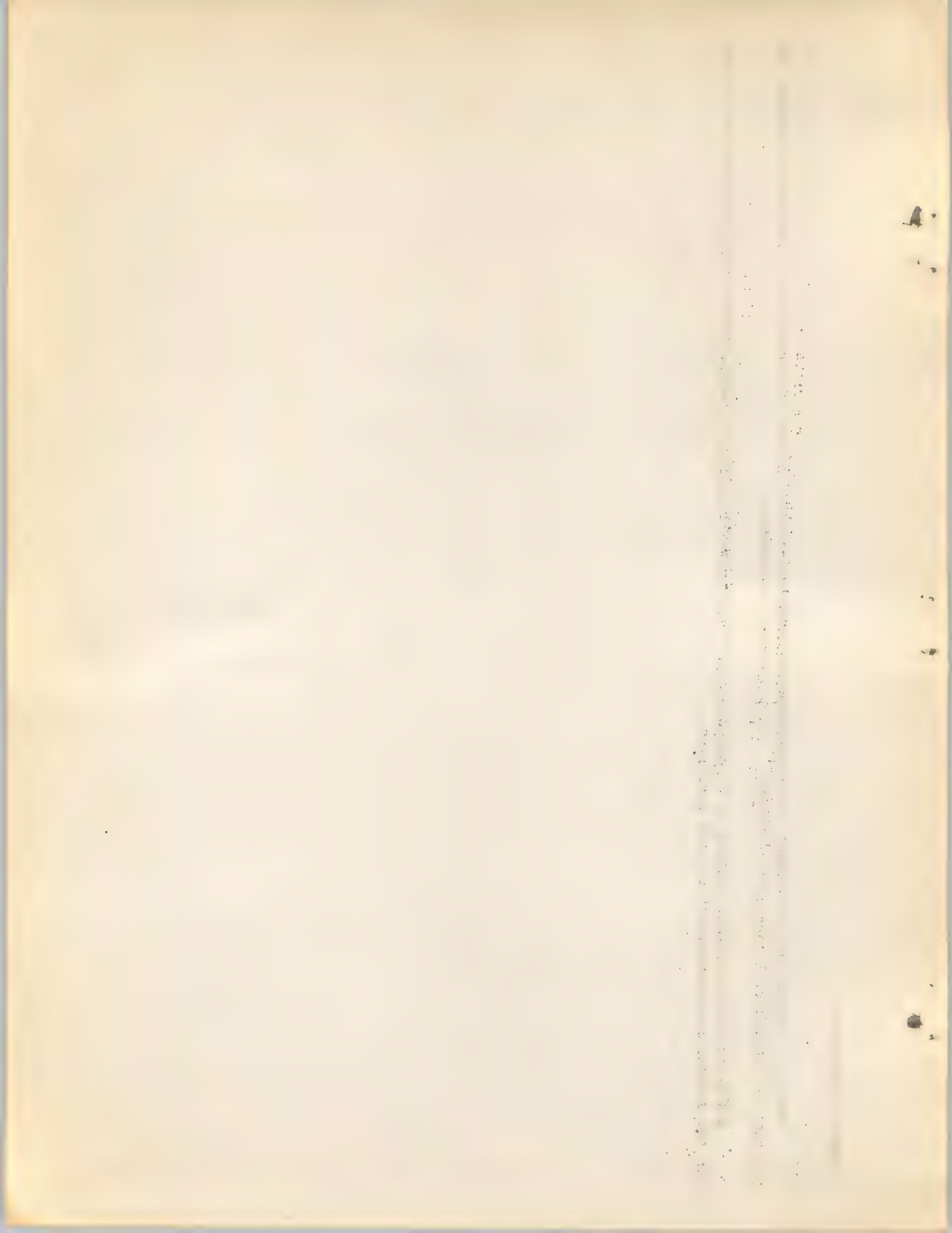


TABLE 4

Summary of Seasonal Labor Needs by Months
Stanislaus County
1935

Month	Required man-days of seasonal labor	Available days	Required man-months of seasonal labor
January	27,231	20	1,362
February	27,980	22	1,272
March	5,740	22	261
April	26,609	23	1,157
May	64,184	25	2,568
June	96,784	26	3,723
July	99,781	26	3,838
August	137,647	26	5,295
September	105,552	26	4,060
October	87,441	25	3,498
November	28,495	23	1,239
December	25,954	20	1,298
Total	733,398	--	29,571

Notes

Notes on Table 2.--- Data concerning "time of need" as shown in this table break down required seasonal labor into the period in which the work is performed in order to permit a subsequent determination of labor needs by months (table 3). Some operations are performed only to a limited extent with seasonal labor. For instance, only about 80 per cent of the labor in combining grain is done by seasonal workers. When a job extends over several different months, the proportionate amount for each month is shown.

The amount of work done each month is based on the cropping system followed during 1935. The allotting of amounts of work is based on findings concerning local farm practices, and required time to "make" a crop resulting from inquiry of producers, and records of carlot shipments, the latter proving helpful in fixing dates of planting and of subsequent tasks involved in producing certain crops. Proportionate amounts of output harvested each month were determined from data of local practices with respect to harvesting, and from carlot shipments of perishable products. Records of truck shipments were also used when available.

Notes on Table 3.--- Table 3 is the condensed summary of labor needs as worked out for Stanislaus County as a result of findings pertinent to 1935. The data are presented by months with the tasks which were performed in each month indicated by both crop and task. The size of the job was calculated from the data appearing in table 1 (acreage and production) and table 2 (task, time of performance, and percentage of work pertinent to a given month). The output per man-day was calculated as indicated in the foreword presenting table 3. The number of required man-days is a result of dividing the size of task by output per man-day. The available days for the different tasks involve two variables. The first is the number of days when field work is possible because of favorable weather conditions. The basis for this column was determined from a study of the monthly weather charts of the United States Weather Bureau for the years 1933, 1934, and 1935. These data indicated available days per month as follows (based on a 26-day working month without allowance for holidays):

Month	Available days	Length of work day hours	Month	Available days	Length of work day hours
January	20	9	July	26	10
February	22	9	August	26	10
March	22	10	September	26	10
April	23	10	October	25	10
May	25	10	November	23	9
June	26	10	December	20	9

Source of data: Based on precipitation records of the Modesto station of the United States Weather Bureau for the years 1933, 1934, and 1935.

The second factor influencing the number of available days was the size of the job. If the output was only a few cars, then the number of days was limited to the time needed to get out those cars efficiently. If a field operation had to be performed in a period less than the number of available days in the month, then the specific number of days was noted. These restrictions are shown in parentheses. For example, in July, picking apricots was limited to the first half of the month, picking cantaloupes to the last twenty days, etc.

The totals of table 3 show the total required man-days of needed seasonal labor, the available days for field work during the month, and the necessary number of men (as defined in the opening paragraph of table 3) required on a monthly basis to care for the tasks ordinarily performed by seasonal workers.

In an area such as Stanislaus County, involving a variety of annual crops, the findings as set forth in this report are bound to fluctuate materially from year to year, because of the market outlook upon what and how much acreage is planted, and when it is planted; because of variable seasonal conditions affecting yields, time of performing operations, and available days; and because of harvesting operations on certain crops being speeded up to supply a good market, or retarded to avoid a poor one, resulting in marked variations in the need for harvest labor.

Month	Available days	Length of work day	Month	Available days	Length of work day
January	28	8	July	28	10
February	28	8	August	28	10
March	28	10	September	28	10
April	28	10	October	28	10
May	28	10	November	28	8
June	28	10	December	28	8

Source of data: Based on investigation records of the Missouri station of the United States Weather Bureau for the years 1933, 1934, and 1935.

The second factor influencing the number of available days was the size of the job. If the output was only a few cars, then the number of days was limited to the time needed to get out those cars efficiently. If a field operation had to be performed in a period less than the number of available days in the month, then the specific number of days was noted. These restrictions are shown in parentheses. For example, in July, picking apples was limited to the first half of the month, giving cancellations to the last twenty days, etc.

The totals of table 3 show the total required man-days of needed seasonal labor, the available days for field work during the month, and the necessary number of men (as defined in the opening paragraph of table 3) required on a weekly basis to care for the tasks ordinarily performed by seasonal workers.

In an area such as Stanislaus County, involving a variety of annual crops, the findings as set forth in this report are bound to illustrate relatively from year to year, because of the market outlook, weather, and how much acreage is planted, and when it is planted; because of variable seasonal conditions affecting yields, harvest, and available days; and because of harvesting operations. If certain crops being spaced up to supply a good market, or reported in early season, resulting in marked variations in the need for harvest labor, etc., etc.